

CLAIMS

1. A device for retaining free loose ends of tightening or fastening straps (5) or belts, or the like, particularly in articles for wearing, wherein
5 said free end is a part of a segment of a strap or belt (5) which is secured by the other end, to a first part (101) of the article, which first part (101) is designed to be connected to a second part (102) of the article, by said segment of the strap or belt (5), said
10 second part (102) being connected in an intermediate portion of the segment of the strap or belt (5), whereby said segment of the strap or belt (5) is divided into a portion (105) for connecting the two parts (101, 102) of the article, and a free loose
15 portion (205), characterized in that the segment of the strap or belt (5) is connected to said first part (101) in a permanent manner, a widened member (7, 8, 10) being provided for fastening and retaining an end of the segment of the strap (5) to the corresponding first
20 part (101), which member (7) has an opening through which the other free loose end (205) of the strap or belt (5) passes and is retained.

2. A retainer device as claimed in claim 1, characterized in that the opening of the widened
25 fastener and retainer member (7, 8, 10) is such that, when the free loose end (205) of the segment of the strap or belt (5) is inserted in the opening, it causes this free loose end (205) to pass from one side of the connecting portion (101) of the segment of the strap or
30 belt (5) to the opposite side of said connecting portion (105) of the segment of the strap or belt (5).

3. A retainer device as claimed in claim 1,

characterized in that the opening of the widened fastener and retainer member (7, 8, 10) is such that, when the free loose end (205) of the segment of the strap or belt (5) is inserted in the opening, the whole
5 free loose portion (205) is situated on one side of the connecting portion (105) of the segment of the strap or belt (5).

4. A retainer device as claimed in claims 1 and 2, characterized in that said opening is either
10 substantially on the same plane as the two faces of the connecting portion (105) of the segment of the strap or belt (5), or extend transverse, particularly perpendicular, to the longitudinal extension of this connecting portion (105) of the segment of the strap or
15 belt (5).

5. A retainer device as claimed in one or more of the preceding claims, characterized in that said widened fastener and retainer member is the first part (101) itself, whereto an end of the segment of the
20 strap or belt (5) is fixed.

6. A retainer device as claimed in one or more of the preceding claims, characterized in that said widened fastener and retainer member coincides with the widened fastening end of the segment of the strap or
25 belt (5).

7. A retainer device as claimed in one or more of the preceding claims, characterized in that said widened fastener and retainer member is a ring (8, 10) that is fixed to the first part (101) of the article
30 (1) along a portion of its circumference while, along the opposite portion of its circumference it is fastened to an end of the strap or belt segment (5).

8. A retainer device as claimed in one or more of the preceding claims, characterized in that said ring (8, 10) has an elongated shape in a direction transverse to the longitudinal extension of the connecting portion (105) of the strap or belt segment (5), and is composed of a pair of parallel longitudinal branches (308, 110), one of which is fastened to the first part (101) of the article (1) whereas the other is fastened to the end of the strap or belt segment (5), which two branches (308, 110) are joined together at each pair of corresponding ends by a portion (208, 210) that is particularly substantially semicircular or substantially straight.

9. A retainer device as claimed in one or more of the preceding claims, characterized in that the fastening end of the strap or belt segment (5) has a portion that is bent back and sewn on itself as a hem (305), that encircles a longitudinal branch (308, 110) of the elongated ring (8, 10).

10. A retainer device as claimed in one or more of the preceding claims, characterized in that the elongated ring (8, 10) is secured to the first part (101) of the article (1) by means of a strap or belt segment which is fixed, and particularly sewn, by one end, to the first part (10) of the article (1), whereas at the opposite end it has a portion that is bent back and sewn on itself as a hem (9) which encircles the other longitudinal branch (308, 110) of the elongated ring (8).

11. A retainer device as claimed in one or more of the preceding claims, characterized in that the strap or belt segment that secures the elongated ring

(8, 10) to the first part (101) of the article (1) has such a length that the ring (8, 10) is situated near the edge of this first part (101), and particularly the seam of the hem (9) corresponds to the seam whereby the strap is secured to the first part (101) of the article (1), or alternatively, it may be longer and such that the ring (8, 10) is situated in an intermediate position between the first (101) and second part (102) of the article.

12. A retainer device as claimed in one or more of the preceding claims, characterized in that at least one, but preferably both longitudinal branches (308, 110) of the elongated ring (8, 10) have an intermediate longitudinal slit (108), which divides the branches (308, 110) into two parallel longitudinal portions, one of which, preferably the external portion, is respectively encircled by the hem (305) at the fastening end of the strap or belt segment (5) and by the hem (9) at the end of the strap or belt segment which is designed to secure the elongated ring (8, 10) to the first part (101) of the article (1).

13. A retainer device as claimed in one or more of the preceding claims, characterized in that at least one, particularly both longitudinal branches (308, 110) of the elongated ring (8, 10) have two parallel longitudinal slits, which divide the branches (308, 110) into three parallel portions, one of which, particularly the intermediate portion, is respectively encircled by the hem (305) at the fastening end of the strap or belt segment (5) and by the hem (9) at the end of the strap or belt segment which is designed to secure the elongated ring (8, 10) to the first part

(101) of the article (1).

14. A retainer device as claimed in one or more of the preceding claims, characterized in that at least one, but preferably both longitudinal portions
5 respectively encircled by the two hems (305, 9), has an opening, particularly an intermediate opening, for insertion of the branch inside its respective hem (305, 9).

15. A retainer device as claimed in one or more
10 of the preceding claims, characterized in that said opening is relatively short as compared with the total longitudinal extension of the portion encircled by the hem (305, 9), and of the hem (305, 9) itself.

16. A retainer device as claimed in one or more
15 of the preceding claims, characterized in that means (407) are provided for preventing the free loose end (205) of the strap (5) from accidentally coming out of the opening of the widened fastener and retainer member (7, 8, 10), when it is inserted therein.

20 17. A retainer device as claimed in one or more of the preceding claims, characterized in that the free loose end of the strap (5) or belt has manual grasping means (6) for tightening and/or fastening the strap (5) or belt, whereas the opening of the widened fastening
25 member (7, 8, 10) has such a size as to allow the passage of said grasping means (6).

18. A retainer device as claimed in one or more of the preceding claims, characterized in that said grasping means consist of a ring (6), particularly a D-
30 ring, whose straight portion (106) is secured to the free loose end of the strap or belt segment (5).

19. A retainer device as claimed in one or more

of the preceding claims, characterized in that the elongated ring (8) has such a shape as to be narrow in the middle and widened at the opposite ends, particularly toward the fastening end of the strap or belt segment (5), in such a manner that the longitudinal branch (308) facing toward this fastening end of the strap or belt segment (5) has an intermediate portion that is arched in the direction of the opposite longitudinal branch (308), which may yield upon insertion of the D-ring (6) in the ring (8) or upon intentional extraction of said D-ring (6) from the ring (8), and forms an intermediate retaining narrowed portion to prevent the free end of the strap or belt segment (5) with the D-ring (6) from accidentally coming out.

20. A retainer device as claimed in one or more of the preceding claims, characterized in that the elongated ring (10) has a third branch (310), which is parallel to the two longitudinal branches (110) and substantially intermediate therebetween, for connecting the two opposite portions (210) which join the two branches together (110) at each pair of corresponding ends, in such a manner as to divide the central opening of the elongated ring (10) into two elongated openings, and in such a manner that the free loose end (205) of the strap or belt segment (5) may be introduced in the opening closer to the fastening end of the strap or belt segment (5) by one of the sides of the connecting portion (105) of the strap or belt segment (5) and extracted from the other opening on the same side of the connecting portion (105) of the strap or belt segment (5).

21. A retainer device as claimed in one or more of the preceding claims, characterized in that the third branch (310) of the elongated ring (10) extends in a slightly raised position with respect to the plane of the elongated ring (10), thereby forming a bridge, to facilitate the introduction of the free loose end (205) of the strap or belt segment (5).

22. A retainer device as claimed in one or more of the preceding claims, characterized in that the third branch (310) of the elongated ring (10) has an opening, particularly an intermediate opening, for facilitating the introduction of the free loose end (205) of the strap or belt segment (5).

23. A retainer element as claimed in one or more of the preceding claims, characterized in that the elongated ring (8, 10) is made of a relatively rigid material, particularly nylon, metal or the like.

24. A retainer device as claimed in one or more of the preceding claims, characterized in that the widened fastener and retainer member consists of a fastening plate which is secured by one edge (107) to the first part (101) of the article, by sewing and/or chemical-physical adhesion and/or the like, whereas it is secured by the opposite edge (207) and still by sewing and/or chemical-physical adhesion and/or the like, to the fastening end of the strap or belt segment (5).

25. A retainer device as claimed in one or more of the preceding claims, characterized in that said fastening plate (7) substantially has the shape of a trapezium, particularly an isosceles trapezium, with the greater base corresponding to the edge (107)

secured to the first part (101) of the article and the smaller base corresponding to the edge (207) secured to the strap or belt segment (5), whereas the opening for receiving the free loose end of the strap or belt
5 segment (5) is an elongated slot extending parallel to the two bases (107, 207) and in an intermediate position therebetween, particularly near the greater base (107), and is substantially as long as the strap segment (5) is wide.

10 26. A retainer device as claimed in one or more of the preceding claims, characterized in that the fastening plate (7) may be made of a relatively rigid material, such as metal, leather, thick fabric or the like, and particularly it is made of a plastic material
15 and has such a thickness as to be relatively resilient, to be elastically deformable by the user's manual pressure of at least the slot edge (7) facing toward the edge (207) secured to the end of the strap or belt segment (5), to allow and/or facilitate the passage of
20 the other free loose end of the strap or belt segment (5) inside the slot (7).

27. A retainer device as claimed in one or more of the preceding claims, characterized in that the slot (307) has a width greater than or equal to the
25 thickness of the strap or belt segment (5), but preferably slightly smaller than it, so that the two longitudinal edges of said slot (307) exert a retention action, to prevent the free loose end of the strap or belt segment (5) from accidentally coming out of the
30 slot (307) when it is inserted therein.

28. A retainer device as claimed in one or more of the preceding claims, characterized in that the slot

(307) has such a size as to be narrow in the middle and widened at the opposite ends, particularly toward the fastening edge (207) of the strap or belt segment (5), in such a manner that the edge of the slot (307) facing toward the fastening end (207) of the strap or belt segment (5) has an intermediate tongue (407) that is designed to yield upon insertion of the D-ring (6) in the slot (307) or upon intentional extraction of the D-ring (6) from the slot (307), and forms an intermediate retaining narrowed portion, to prevent the free end of the strap or belt segment (5) with the D-ring (6) from accidentally coming out of the slot.

29. A retainer device as claimed in one or more of the preceding claims, characterized in that the strap or belt segment (5) is connected to the second part (102) by buckle means (4), in such a manner as to adjust the position of these buckle means (4) along the longitudinal extension of the strap or belt segment (5), to allow the strap or belt segment (5) to be tightened and/or fastened.

30. A retainer device as claimed in one or more of the preceding claims, characterized in that the strap or belt segment (5) is connected to a first part (404) of the buckle (4), which is engaged, particularly snap-fitted, with a second part (504) of the buckle (4), associated to the second part (102) of the article, in such a manner that the first (101) and second part (102) of the article are connected in a removable manner.

31. A retainer device as claimed in one or more of the preceding claims, characterized in that the buckle (4) or the second part (504) of the buckle (4)

is connected to the second part (102) of the article by means of a second strap or belt segment, particularly to adjust its position along the longitudinal extension of said second strap or belt segment.

5 32. A retainer device as claimed in one or more of the preceding claims, characterized in that the end of the second strap or belt segment which secures it to the second part of the article is equipped with a retainer and possibly fastener device (7, 8, 10) as
10 claimed in one or more of the preceding claims.

 33. A retainer device as claimed in one or more of the preceding claims, characterized in that the first and second parts are parts of a harness member, or the like, associated to a backpack, a bag, or the
15 like.

 34. A retainer device as claimed in one or more of the preceding claims, characterized in that the first and second parts are two parts of a belt member, for securing a backpack, a pouch or the like to the
20 waist of a user.

 35. A retainer device as claimed in one or more of the preceding claims, characterized in that the first and second parts are two parts of a fastening and/or tightening belt member, for closing and/or
25 compressing a bag.

 36. A retainer device as claimed in one or more of the preceding claims, characterized in that the first (101) and second parts (102) are two parts of a harness (2) and/or waist belt (3) member, of a buoyancy
30 compensator vest.

 37. A buoyancy compensator vest comprising, in each of its two harnesses (2) and/or lap belt and/or

waist belt (3) and/or other belts, at least one strap segment (5), which is secured by one end to a first part (101) of the vest and has an intermediate buckle (4), whose position may be adjusted along the total longitudinal extension of the strap segment (5), which buckle (4) is directly fixed on a second part (102) of the vest or on a second strap segment, possibly in such a manner as to adjust its position along the extension of said second strap segment, which is in turn fixed by one end to the second part (102) of the vest, so that, by exerting a pulling action on the free loose end/s of the portions (205, 103) of the strap (5) projecting beyond the buckle (4) out of the vest, the harness (2) or the belt (3) is tightened or fastened, characterized in that the end secured to the respective first part (101) of the vest and/or the strap segments (5) has an opening through which the respective free loose end (205, 103) of the strap (5) or belt (3) passes and is retained.

38. A vest as claimed in claim 37, characterized in that said opening is formed in a widened device (7, 8, 10) for securing the end of the strap segment/s (5) to their respective parts (101) of the vest, which is as claimed in one or more of claims 1 to 36.

39. A vest as claimed in claims 37 and 38, characterized in that said opening is in such a position that the free loose end (205, 103) of the strap/s (5, 3), when the latter are inserted in the opening, may be reached by the hand of the user for tightening or fastening the harness (2) or belt (3), particularly from within the vest.

40. A vest as claimed in one or more of claims 37

to 39, characterized in that the buckle (4) of the harness (2) or belt (3) is composed of two snap-fit parts (404, 504), one (404) of which is associated to the first strap segment (5) and the other is associated to the second part (102) of the vest or to the second strap segment.

41. A D-ring (6), whose straight portion (106) is designed to be held in a hem (305) which is obtained by bending back and sewing the free loose end of a strap (5) or belt on itself, for manually grasping and fastening or tightening said strap (5) or belt, characterized in that said straight portion (106) has an opening, particularly an intermediate opening, that allows insertion of the D-ring (6) in the hem (305).

42. A D-ring as claimed in claim 41, characterized in that this opening for insertion of the ring in the hem (305) is formed in a segment (206) that is provided in an intermediate position between the straight portion (106) of the D-ring (6) and the opposite side of the ring (6), particularly adjacent to said straight portion (106) and at a slightly greater distance with respect to the thickness of the strap (5) or belt.

43. A D-ring (6) as claimed in claim 41 or 42, characterized in that said opening is relatively short as compared with the whole length of the straight portion (106) of the D-ring, of the intermediate segment and of the hem (305).

44. A retainer device for free loose ends of tightening or fastening straps or belts, or the like, particularly in articles for wearing, and buoyancy compensator vest having such a device, wholly or partly

as described, illustrated and for the purposes stated herein.